# VCF PNW 2020

March 21st and 22nd, 2020
Living Computers:Museum+Labs
Seattle, Washington


**http://vcfed.org/vcf-pnw/**

## Schedule

### Saturday, March 21st

10:00 AM Museum opens and VCF PNW 2020 starts
11:00 AM Opening comments from VCFed.org and LC:M+L
1:00 PM **Bil Herd**,*Commodore Business Machines - A Greek Tragedy in 3 Acts - Jack Tramiel Leaves*
2:30 PM **Scott Swazey**, *Restoring the PDP-11/45 That Animated the Star Wars Death Star Plans*
4:00 PM **Dr. Stachniak**, *Hardware Emulators - From Computing Nostalgia to Historical Research*
5:00 PM Museum closes - come back tomorrow!

### Sunday, March 22nd

10:00 AM Day two of VCF PNW 2019 begins
11:00 AM **Jon Philpott**, *ArcASM - The Story of Developing a Programming Game for the NES*
1:00 PM **Joe Decuir, IEEE Fellow**, *What If? Amiga Cartoon Animation*
2:30 PM **Darius Kazemi**, *What I Learned From Reading 365 Standards Documents*
4:00 PM Presentation of show awards and wrap-up
5:00 PM Museum closes and preparation for VCF PNW 2021 begins!

# Exhibitors

*One of the defining attributes of a Vintage Computer Festival is that exhibits are interactive; VCF exhibitors put in an amazing amount of effort to not only bring their favorite pieces of computing history, but to make them come alive. Be sure to visit all of them, ask questions, play, learn, take pictures, etc. And consider coming back one day as an exhibitor yourself!*

**Alan Perry**, *Barn-find Sun 3/260 Restoration*, After last year's VCF PNW, a Sun 3/260 deskside workstation that had been sitting in a barn for a dozen years was given to me. In this exhibit, the progress made since then in restoring that system will be shown. Also on display will be examples of the difficulties encountered in doing such a restoration and why storing computers in open barns may not be the best idea.

**Josh A Dersch & Ian Finder**, *1973-1993: 20 Years of Graphical Workstations*, Starting with the milestone the Xerox Alto set in 1973, graphical workstations of the 1970s and 1980s were varied, creative, and interesting. Come interact with an eccentric array of two decades' worth of workstations from Xerox, Sun, SGI, Symbolics and many others!

**Zachary Hardesty**, *The Wonderful World of Quake*, We all remember using the Unix workstations in the past, I mean, were you really a professional if you didn't have an SGI on your desk? We agree, but we also agree that you need to have fun in life. Bridging the gap between 1990s professionals and 1990s gamers, we have set up an exhibit that shows Quake running on the workstations of yesteryear.

**Brian Gosney**, *BBSes: What We Did With Our Modems Before the Internet*, From the late 1970s through the mid 1990s, people who wanted to expand the horizons of their personal computer needed only a modem and a list of BBS phone numbers. With this, they could dial into a remote computer to exchange email with fellow computer enthusiasts, download games and applications, and even play some online games. Come, login and get a taste of what it was like to play these games in the early 1990s.

**David Cooper**, *VAX 750 Machine Room*, This exhibit features a working VAX 11/750 and MicroVAXen in a VAXCluster, a DECwriter III console terminal, TU80 tape drive, a VT-100 on rolling stand, DECserver terminal multiplexer, a tape rack and a Gray Wall. The VAXcluster will be running OpenVMS 7.3 and will be connected to the Internet.

**Bill Buzbee**, *Magic-1 HomebrewCPU*, A demonstration of a scratch-built minicomputer running a port of the Minix 2 operating system. Constructed from more than 200 74-series TTL devices wire-wrapped across 5 cards, Magic-1 features a custom instruction set, virtual memory, paging support, Internet connectivity and is fully multi-user and multi-tasking. This will be Magic-1's first showing outside of Silicon Valley. It has been displayed in several VCF West shows, including VCF 8 in 2005 where it was voted best of show.

**Eric Ozrelic**, *Sun Microsystems Workstations and the Start of the Internet Revolution*, An exhibit featuring a handful of noteworthy Sun workstations from 1990 to 2005. These workstations will have Internet access and have various period specific operating systems, web browsers and some curated sites to visit. The goal is to give visitors a sample of what the Internet once looked like before Windows-Intel took over.

**Sergey Kiselev, Michael Kiselev, and Jaytee Franko**, *Home Computers in the Soviet Union*, By the second half of the 1980s home computers reached the Soviet Union. During that period several computer designs were published in popular magazines and built by enthusiasts, with Radio-86RK being one of the first designs. Later on multiple ZX Spectrum clones produced both by amateurs and co-ops (that were recently allowed by Law on Cooperatives) flooded the market. On the "higher end" some schools have received beautiful MSX machines as a part of the government's computer literacy program instituted in 1985. Visit this exhibit and experience working (and playing) on modern remakes of Radio-86RK, MSX2, and ZX Spectrum computers.

**Evie Salomon**, *BackBit: An Instant-loading Cartridge for Commodore 8-bit Computers*, Do you have a millennial-tuned attention span but love nostalgia? Then you will want this cartridge, made exclusively for Commodore's 64, 128, and VIC 20 machines. Never wait for loading. Never swap a disk. Just drop some files on an SD card, plug it in and play! Works with thousands of existing programs, and new features are being added all the time.

**Jason Howe**, *Alpha Syntauri: The Original Syn*, An early entry into software based musical synthesis, The Alpha Syntauri provided additive synthesis at a fraction of the price of its hardware based counterparts. A special dual-ranked sound card combined with innovative software, including software based multi-track recording/sequencing, make the Alpha Syntauri an important evolutionary step in musical production on commodity consumer hardware, which is now commonplace.

**Rob Carnegie**, *Chilliwack Retro-Computing Club: Home-brew Retro*, The Chilliwack (BC) Retro-Computing Club will be presenting a Homebrew Computing themed exhibit featuring an assortment of projects built from scratch or kit by members.

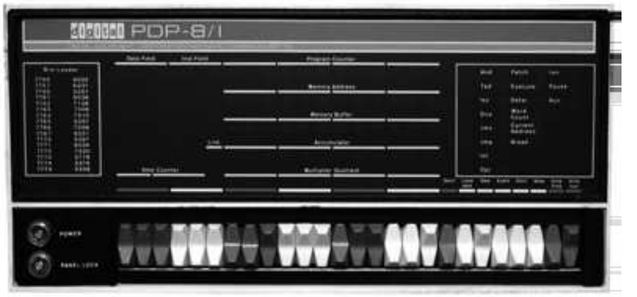
Projects will include a hand made miniature IBM System 370 running MVS 3.8j (Rob Carnegie), a P112 Z80-based computer with an IDE hard drive running CP/M (Alex Dumitru), a retro-computer controlled voting machine that lets you vote for the best 8-bit computer (Jordan Evans), a selection of Cosmac Elf systems built from kits, two Z80 based RC2014 systems running CPM/Basic and a C64DTV Radio Shack HUMMER toy hack that runs C64 games (Rizal Acob), and a selection of TRS-80 Retro hacks including a Raspberry Pi TRS-80 Retro Computer and a new TRS-80 Emulator (George & Peter Phillips).

**Gregory McGill**, *TI-99/4a Systems*, Released in 1981, the TI-99/4a was the first 16 bit home computer and on paper it was a very capable machine. A price war with the Commodore VIC-20 caused the price to drop, making it very affordable for the average person. Third party support never materialized so when the machine was orphaned by TI in late 1983 the existing user base had to figure out their own software and hardware solutions. This exhibit will feature several machines with period software, new software and new homebrew hardware projects. There will also be a demonstration of the TI-99/4a connecting to a BBS, which is something I did with mine back when it was current.

**Mark D. Overholser**, *Networked 8-bit Computers for Gaming, Collaboration and Socializing*, A demonstration of 8-bit systems, specifically the C64, the Apple ][ and the Tandy Color Computer (CoCo), networked together with Ethernet or WiFi to interoperate in a game or on the Internet to a system like IRATA.ONLINE.

**Stefany Allaire**, *C256 Foenix - A New Retro Computer*, The year is 1987 and the 8-bit era is drawing to a close. Computers are no longer just for gaming and learning; they are transitioning into business tools. More graphics, sound, memory and storage is the name of the game but how do you do that while keeping true to what made Commodore successful? What if Jack Tramiel had never left Commodore and the Amiga stayed elsewhere? The C256 Foenix FMX is the answer to those questions. It is a platform that feels like a C64 but has the power of the Amiga. It uses the legendary WDC65C816 with powerful companion chips to allow for high-end graphics, multiple sound chips, and real mass storage support. Come see what it can do, but remember it is a work in progress that will only get better.

**Vincent Slyngstad**, *PDP-8 Repair and Restoration*, Repair and restoration of machines like the PDP-8 is arguably easier and cheaper than ever. We will be showing testing and repair technology, as well as ways to trick out the restored machine, adding those features you used to long for but could never afford. We plan to show off our tricked-out 8/E again this year, running Spacewar! and other cool games and demos using the VC8E graphics.



**Luther Johnson**, *MakerLisp Machine*, The MakerLisp machine is a portable, modular computer system, designed to recapture the feel of classic computing, with modern hardware. The machine centers on a 2" x 3.5" CPU (about the size of a business card) which can be used stand-alone or plugged into a 2" x 8" main board for expansion to a full computer system. A laser-cut wood enclosure holds a small keyboard, an LCD monitor, the circuit boards, and a prototyping area with a breadboard for electronics experimentation and development.

**Luca Cappa**, *Pimpin' Commodore Amiga Computers!*, Since 1994 there have been several failed attempts to revive the Amiga 68k platform. Finally the introduction of FPGA based accelerators is creating momentum for the classic Amiga community once again. Join us to explore the fastest 68k series CPU along with new graphics and audio chipsets by playing with accelerated Amiga models (A1200+68030, A3000+68040, A600+Vampire V600+, A2000+Vampire V500+), and then with the fastest Amiga computer ever: the Vampire V4. Exciting times are here for the Amiga community again!

**Shane Benting**, *Early IBM Portables*, Marvel at IBM's early attempts to create a portable computer. Starting with the 5155 Portable PC, their quickly-built attempt to compete with Compaq's cheaper and smaller Portable. Next is the infamous 5140 PC Convertible, IBMs first laptop which featured a removable display and continually grew in length with add-on accessories (including a printer!) Next up is the IBM PS/2 L40 SX, which is the first IBM computer to look like a modern laptop and the true ancestor of the celebrated ThinkPad line. Finally, a (sadly, non working) PCradio - IBM's (and possibly the worlds) first laptop with a built-in cellular modem! There may also be an extra surprise or two!

**Neil Breeden**, *Experiencing the Altair 8800: Emulation? Buy vintage? Reproduction?*, In this exhibit we look at an Altair 8800 system which uses vintage cards and components along with modern reproductions and a couple of new cards. The idea was to build a reproduction to capture the look and feel of the original machine using as many vintage boards and parts as possible. The vast majority of the system is vintage from the CPU card to the 8-inch floppy drives. My exhibit will have the machine opened so you can look at the electronics and see the 8-inch disk drives in operation. We can play with CP/M or pull out individual cards to take a closer look. How deep we go depends on your curiosity.

**Joan Touzet**, *The WICAT: World's First 68000-based Computer*, In 1976, at age 45, a New York City K-12 girl's school headmaster left his job, hell-bent on revolutionizing the classroom with technology. Four years later, he founded WICAT Systems in Utah. In 1981 WICAT released the S150, the world's first commercially available 68000-based computer, with 256KB of RAM and a 10MB hard drive. We will have a later model, the S2150, on display. Come see what the WICAT world was like - one computer, lots of terminals - and get hands on with the unusual operating system it ran, WMCS.

**Monty McGraw**, *Tektronix 4054A Computer System with Floppy Drive*, This exhibit will feature an operational Tektronix 4054A computer from 1980 with a 19 inch 4096x3125 vector graphics display, a 4907 floppy drive system, and a graphics tablet.

**J.P. McGlinn**, *Silicon Graphics Lavarand and Simultaneous Multi-user Workstation*, In recreating Lavarand I am using a Silicon Graphics O2 workstation and camera to capture images of a LAVA(r) Lamp to seed a random number generator. Watch some random numbers get generated live! Also featured in this exhibit is the CADduo option for the Octane workstation offered by Silicon Graphics in 1998. This hardware and software support in the IRIX operating system allowed two users to share a single workstation, making your investment go further and reducing maintenance and administration costs. On display will be two IRIX desktop user environments provided by a single system-two keyboards, two mice, two monitors on one machine.

**David McNaughton**, *TheHighNibble*, TheHighNibble produces an IMSAI 8080 replica kit that reproduces the CP-A front panel on a 1:1 scale inclusive of the distinctive red and blue toggle switches and the blue aluminum lid but in a package that is only 3" deep. The software simulates both the 8080 or a Z80 CPU along with four virtual 8" floppy disks (FIF), a hard disk, VIO, SIO with 2 hardware UARTS, Cromemco Dazzler and Cyclops (digital video camera) and a "Hayes" style AT-command set modem over WiFi/Telnet. Most I/O devices are simulated in a web based, desktop UI that is served directly from the replica over WiFi, but a hardware based I/O option with a connected VGA monitor and PS/2 keyboard will also be demonstrated.

**Rich Alderson**, *MIT CADR: A LISP Machine*, The LISP Machine project was started in 1973 at the MIT AI Lab by Richard Greenblatt and Tom Knight. The original machine was a 24bit architecture optimized to run LISP code. The CADR was the second machine which improved upon the CONS design. The CADR was a production prototype and about 25 machines were assembled, hand wired and sold for $50,000 between 1975 and 1980. DARPA began funding the CADR project in 1978 and the success of this machine spawned the commercial enterprises Lisp Machine Incorporated (LMI) and Symbolics. While at first the two companies worked together, an eventual schism developed amongst the AI Lab.

# Presentation abstracts

**Bil Herd**, *Commodore Business Machines - A Greek Tragedy in 3 Acts, Act II  Jack Tramiel Leaves* Bil Herd talks about what it was like being a young, long-haired, design engineer working at Commodore in the 1980s.  This will be a free flowing conversation about the middle years of Commodore, of Jack leaving, insane schedules, and the end of the 8 bit era for Commodore.  If everyone has already heard all of the stories then Bil promises to make up all new ones or at least talk about things you may not have heard.

**Scott Swazey**, *Restoring the PDP-11/45 That Animated the Star Wars Death Star Plans* This talk will cover the history, efforts to acquire, and restoration of the PDP 11/45 and Vector General display that were used to film the Death Star animation sequence in the 1977 movie "Star Wars."  I will also cover the work done to build an FPGA replica used to demonstrate the vector graphics system here at VCF PNW.

**Dr. Zbigniew Stachniak**, *Hardware Emulators - From Computing Nostalgia to Historical Research* Software emulation can be credited with many accomplishments including bringing vintage computers, calculators and game consoles back to life. But they can be more than just players for vintage software - an historically accurate emulator can be an important source of information and an accurate research tool. In this presentation I will look at emulators as tools for historical research.  A recently developed emulator for the MCM/70 microcomputer will be used to illustrate my remarks.  I will also present some of the findings concerning the MCM/70s design that were uncovered at York University Computer Museum using the emulator.

**Jon Philpott**, *ArcASM - The Story of Developing a Programming Game for the NES* This talk will cover the development of a competitive assembly language coding game for the NES console platform showing how NES games can be built in this era and some of the fun around assembly language coding competitively.

**Joe Decuir, IEEE Fellow**, *What If? Amiga Cartoon Animation* The Amiga was started with a vision: a video game console capable of rendering cartoons.  This presentation, from a designer, discusses contemporary video game consoles, how cartoons are rendered by artists, and how the Amiga was structured to automate this work. The presentation will include estimations of financial feasibility, how it compared to the competition, and pre-recorded demonstrations. The presentation will include suggestions for experiments by the audience.

**Darius Kazemi**, *What I Learned From Reading 365 Standards Documents* 2019 was the 50th anniversary of the ARPANET, but it was also the 50th anniversary of a series of early ARPANET standards documents called Request For Comments. Darius Kazemi decided to spend the year reading and writing about one RFC a day, in chronological order. Not only did he learn how the ARPANET worked from first principles, but he learned a lot about how people communicate when they are

inventing the future. He will talk about how these lessons apply to technical communication in 2020.

# About us ...

Vintage Computer Federation Inc. (VCFed) is a 501(c)(3) nonprofit organization whose mission is to enable the preservation of computing history through education, hands-on work at our museum in New Jersey, and outreach at events such as this and on the Internet.

In addition to VCF PNW we also run VCF East (New Jersey, each spring) and VCF West (Silicon Valley, August). Outreach includes running the Vintage Computer Forum (the hobby's largest online discussion forum), supporting in-person meetups through regional chapters, and helping other related groups fulfill their missions.

Want to know more? Visit us at http://www.vcfed.org/ or email us at info@vcfed.org for general information. For VCF PNW specific questions email me at michael@vcfed.org.

VCF shows are a volunteer effort. Without people pitching in their personal time and resources this doesn't happen. Besides the exhibitors and speakers listed above we want to recognize the volunteers who make this happen! Special thanks also goes to LC:M+L for hosting us and helping with the show logistics.

# Tell us what you think!

Have a moment for a survey? If so please head over to http://vcfed.org/vcf-survey.

Did you see something awesome? Maybe something that can be improved? Write me at michael@vcfed.org or mbbrutman@brutman.com.

Thanks,
Michael Brutman, VCF PNW 2020 Producer

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